The MAC Flyer

APRIL 1983

Battling the Birds . . . 11

The MAC Flyer

MILITARY AIRLIFT COMMAND

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Cover Photo: C-47 in Air Force Museum Annex. See "Airlift Heritage," page 16. Photo courtesy USAF Museum.

Flyer Call

Every so often, one of the editors of this fish-wrapper inhales too much pollen from the surrounding corn fields and comes up with another hair-brained idea for a new feature. More often than not, it's the junior editor who's trying to improve his chances for promotion. Anyway, such is the case as we once again introduce a new feature to TMF.

On page 15 we feature our new "World Aircraft Recognition Guide." We portray the selected world combat aircraft in three-view form for your education and enjoyment. Using this guide will help you distinguish friend from foe, and should also assist you in determining whether that new wingman who just joined on your newly-painted 'Lizard' is an F-15, MiG-15, or a Quick Silver ultralight with an irate farmer at the controls.

As with everything we do, we invite your letters, phone calls and other semi-legible correspondence.

Write: HQ MAC IGFE; Scott AFB, IL 62225 or call us at Av 638-3534. Read, enjoy and fly safe!

BH

A Parting Observation

As I look back over my Air Force career, I can truthfully say working as the MAC Director of Safety has been one of the most interesting, challenging and fulfilling jobs of my career. I sincerely appreciate the support I've received from commanders, supervisors, aircrews, and the individuals on the line. Their support is so vital to the safe and sucessful accomplishment of the Military Airlift Command's mission.

We in MAC have the most professional, highly dedicated safety managers in the Air Force and I thank them for their tireless around-the-clock efforts. But I must also applaud the hundreds of additional duty safety officers and non-commisioned officers responsible for overseeing and implementing our programs at the unit level. We couldn't get the job done without you.

There are now approximately 90,000 people in this command, civilian and military, and each of you is a "safety officer." Keep this in mind as you conduct your daily activities both on and off the job because each one of you is vital to the command's mission. Even one person off work one day due to injuries hurts our ability to get the job done effectively. We must all strive to ensure safety for our people and to protect our national defense resources. Each of you is responsible for that.

During my tenure as Director of Safety we've initiated several programs to provide a safer environment for all.

—The Accident Waiting To Happen (AWTH) program, designed to identify potential human factor causes for mishaps, has been especially gratifying. MAC crewmembers submitting anonymous AWTH forms have already pointed out areas that are definitely waiting to cause accidents. As these have been identified, we've taken action to see these potential causes corrected or removed. But we depend on you in the field to help us identify and fix these problem areas.

—The Mishap Review Panel was formed to review open recommendations from mishap investigations and to expedite corrective actions in these areas.

—Flight, Ground, Explosives and Nuclear Surety safety personnel have prepared comprehensive training programs designed to help their people do their jobs more safely by making them more safety conscious.

—MAC personnel are recognized for their safety accomplishments through the most active safety awards program in the Air Force.

—Finally, we get our safety message out to you through the pages of The MAC Flyer. But our safety message needs to be even more widely disseminated.

These safety programs are worthless, though, without your complete support and cooperation. Help us make them work for you.

Finally, I'll always have a warm spot in my heart for this command and the people who make it happen. And even though I complete my active service, I'll always be proud to be called an "airlifter." I wish each of you God speed, good health, and the greatest success in your future endeavors. Keep the command safe and well.

Louie O. McFeron

LOUIE O. McFERON, Colonel, USAF
Director of Safety

On Becoming Old Heads

There's more to being a good pilot than just being in the books.

by First Lieutenant C.W. McCausland
Det 9, 67 ARRS
Zaragoza AB, Spain

Life in a combat rescue detachment for a brand new copilot was anything but dull. I had jumped from the relative tranquility of flight school, with its same old traffic patterns and single-engine Hueys, to the advanced state of twin-engine Hueys and combat operations. Here was a whole new world of operations limits, aircraft characteristics, emergency procedures, combat tactics, and peacetime search and rescue (SAR)—all the stuff that, once learned, made you a *"rescue pilot."*

I reported for duty bright and early that Monday morning. (Well, early maybe, but perhaps not so bright). A cold front had moved through our area leaving a solid overcast at 2,500 feet and a heavy drizzle. Visibility was good -- for the moment, that is.

As I walked through the door I was met by the cheery face of my friend, First Lieutenant "But the Book Says" I.M. Stickler, called Hopalong for short, which is another story in itself. Hopalong was a good pilot and had just recently upgraded to aircraft commander. He knew his books, too. Cold! His only drawback was that he sometimes had a tendency to worry more about regulations than wires, trees, and other things that jump up out of the ground while you're flying. Hopalong hadn't put any gray hairs in my temples yet, but I was determined to stay on top of the aircraft in the air and worry about memorizing regulations later on the ground. Anyway, we were two young lieutenants ready to take on the world.

"Such a deal I have for you," grinned Hopalong. "How would you like to fly this morning? We've got to get this currency flight in today because we're behind in flight time, and the PJs need some jumps to stay current. After we do the jumps, maybe we'll get an instrument approach or two."

Being a young buck copilot, I

Honorable Mention, 1982 MAC Flying Safety Writing Contest

jumped at the opportunity for more flight hours, forgetting my previous misgivings about the weather. "Great," I replied, "What's the weather like?"

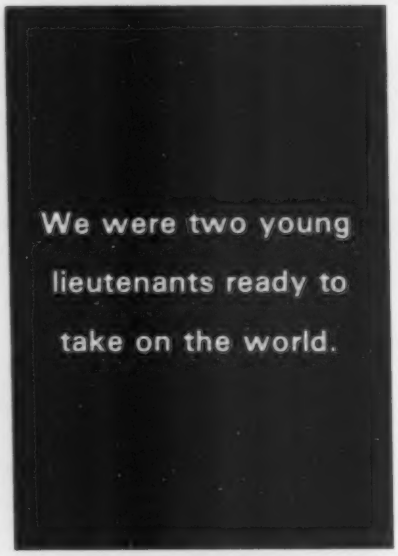
"Weather says we've got a 2,500 foot overcast with 3.5 miles vis, freezing level is at nine grand, and the winds are northwesterly at 10 knots," replied Hopalong, matter-of-factly.

Our local procedures required 3,000 feet and 4.3 miles visibility for VFR, and we also needed 2,400 feet and less than 15 knots winds for the jumps. While those figures didn't seem too bad, our area was notorious for the winds picking up real quick. I also pointed out to Hopalong that the weather looked pretty nasty for an inexperienced copilot and a new AC.

"Naw!" replied Hopalong. "We'll go special VFR in the control zone and go up to take a look at the ceiling with the PJs ready to go in the back. And if we hurry, we'll beat the winds. Besides, do you want to fly or not? After all, we are combat-qualified pilots!" Hopalong said all this grinning enthusiastically. How could I resist? More importantly, I didn't want to be known as a strictly VFR pilot, so I clammed up about the weather. Besides, the 2.5 hour sortie looked good to me.

Off we went to the briefing room. We hurried through everything because we didn't want a late takeoff. Hopalong hated late takeoffs and showed a tendency to rush things when running late. We did a quick preflight. Really quick! It was raining, cold, and the wind was pretty nippy. Then we started the checklists for getting cranked up and ready to go.

Our combination "PJ-safety observer-flight engineer-jump master-navigator-chief scanner—and senior experienced crewmember" was in the back of the plane. In those days "Mother MAC" did not require flight engineers on all flights. Sergeant Boom-Boom (so called because his name was hard to pronounce) had been around awhile. He had a lot of "saves," a chest full of medals, was the unit power-lifter, and was never afraid to voice his opinion.



We launched and got clearance to 2,400 feet for the first observation pattern and PJ streamer drop. The first pattern showed everything was still okay, but the ragged edge of that overcast was awfully close to our rotor disk. Surely Hopalong noticed, I thought, but he was busily reciting parameters and checklists and the like. I was the copilot so I watched the altimeter and cleared left.

One thing I had learned about PJs in my short experience with combat rescue was that they were every bit the rough and ready professional airmen their credo says they are. But I had also learned that PJs don't like clouds. I turned around and saw them huddling in the back with Sergeant Boom-Boom, peeking at us in front, while two guys in the door were saying, ". . . this pass . . . we're going."

Thirty seconds prior to the drop, the ragged edge of the clouds reached down and grabbed us. There we were, in the clouds, with PJs in the door, ready to jump. We managed to break out and Hopalong started a left-hand crosswind turn for another pattern, with no descent. And wouldn't you know it, we punched right back into the clouds! I went on instruments (just like they taught us in flight school) while Hopalong was busy reporting what the book said to do in a situation like this and looking for the ground out of the right window.

After watching him maneuver the aircraft through a nose high attitude and into even more right bank, I had had enough. With 40 knots indicated, I pushed the cyclic back over to wings level and asked Hopalong to please get on the instruments. Although I didn't have vertigo yet, I wasn't too sure about my AC. I kept quiet, but my feelings of self-preservation were beginning to override my conduct as a "good" co-pilot.

We went into a descending left hand turn with a pretty good rate of descent, when I remembered the *big* power lines that were out there somewhere. Just then, a mesa jumped up about 1,000 feet out of the ground, right in our area.

Just as I grabbed the controls, we broke out about 300 feet above good old terra firma. I put us in a straight-and-level attitude and gave the controls back to my friend who admitted that he really didn't know where we were. He asked me to fly him back to base and I readily agreed. When we landed I

figured we had cheated the specter once that day and would call it quits. Right? Wrong!

Over the intercom, I heard, "We'll just drop the PJs off and go grab some actual instrument time!" I looked in utter disbelief at my AC. He was *dead* serious! Ready to go! I looked back at Sergeant Boom-Boom. He had lost his confident look, but kept quiet nevertheless. (I had never known him to keep from speaking out before.) Oh, well, my heart rate was back to normal, so why not?

. . . the ragged edge of the clouds reached down and grabbed us

We came up on the GCA radio frequency and asked for vectors to a PAR. Punching into the clouds, we started a climb to 8,000 feet. Everything was, for the moment, under control. We weren't getting vertigo and we were getting some good training. Sergeant Boom-Boom, meanwhile, had moved up between the seats to watch. Not that he didn't trust us, you know, but I think he had just about decided these two young lieutenants needed some looking after.

Going through 6,000 feet, I noticed a little ice under the windshield wipers and *assumed* Hopalong had seen it also. After all, he was the AC. At 6,500 feet, with Sergeant Boom-Boom's steel grip crushing my shoulder and his other hand pointing at the wipers, I decided it was time to let Hopalong know what was going on.

"Hey Hoppy," I tried to say as casually as I could. "How about asking GCA for a lower altitude? It's getting a little icy up here." My friend looked up in surprise but readily complied. We got back down to 5,000 feet and the ice changed to rain water.

We shot our first PAR approach with no real problems other than the fact that we didn't break out until the last 100 feet. Before I could speak up and suggest that we talk about things, Hopalong had gone and missed the approach, and put us right back in the clouds. I wondered if he had noticed the ground fog rolling in from the north?

"Okay, brief your approach. It's your turn," said my AC in all honest professional sincerity. He was actually *enjoying* this stuff. On the other hand, I was beginning to develop a PJ attitude towards clouds.

I briefed my approach and assumed control of the Huey. Instantly, I felt better but finally realized the foolishness of all this. I decided that we were going to land at the end of this approach, and then have a little pow-wow. We broke out into a sucker-hole over the field, but there was a fog bank building ever closer to the northern edge of the field. I finished the approach and went to tower frequency for clearance to land and for termination. "Where are you going?" inquired Hopalong. "We still have half an hour of good flying time."

"Let's land and talk about it," I replied. I could hear the cheers from the back without the use of the intercom.

I landed and went to flight idle with the throttle. "Look," I said to Hopalong. "We've got a sucker hole right over the field, fog on the northern edge of the field with winds picking up and blowing it our way. Let's shut down and call it a day."

Sergeant Boom-Boom finally spoke up, "Right, sir. We were really kind of pushing it out there today. Besides, I'd like to be able to hug my wife again."

Hopalong was thoughtful for a moment and then said, "You're both right. Today has been pretty rough. There isn't any sense pushing it just for the sake of currency."

As we all agreed and finished shutting down the bird and cleaning up the checklist, my friend spoke up, "Besides, if we don't stop to think about it every so often, how are we ever going to become 'old heads'? "

ABOUT THE AUTHOR

A 1979 graduate of the Air Force Academy, Lieutenant McCausland completed undergraduate helicopter training in 1980. After transitioning to the UH-1N at Kirtland, he was assigned to Det 9, 67 ARRS at Zaragoza. Lieutenant McCausland currently serves as an aircraft commander and the safety officer at Det 9.

Major Schmitz and crew, 1st Helicopter Squadron, Andrews AFB, Md., were on a routine upgrade flight for the copilot, Captain Dingley. Approximately 1.7 hours into the mission, the crew of the UH-1N began several practice autorotations to runway 19L at Andrews. As Captain Dingley applied throttle for the planned power recovery on the last 180° autorotation, the crew heard a loud bang from the aft portion of the helicopter, and felt the aircraft shudder. At this point, the aircraft was only 50 feet above the runway and descending rapidly. Major Schmitz immediately assessed the situation as a single engine failure, took control of the helicopter, and prepared for an emergency landing. Closely monitoring the rotor RPM, he guided the helicopter to a smooth slide-on landing. Immediately after the helicopter came to a stop, the flight engineer, Master Sergeant Williams, exited to check for visible damage. He spotted smoke coming from the number 2 engine, advised the pilots, and grabbed a hand-held fire extinguisher to protect them during the egress. The pilots called for the fire department, shut down all power, and evacuated the smoking helicopter without incident. Subsequent investigation revealed extensive damage to the number 2 engine, involving numerous missing turbine blades, fragments of blades and bearings in the exhaust duct, and holes in the engine casing. The quick and timely reaction of Major Schmitz and his crew to a critical emergency during a vulnerable flight regime undoubtedly prevented further damage to their helicopter and injury to themselves. The crew's professionalism and skill in handling this emergency clearly demonstrate their Excellence In Airmanship.

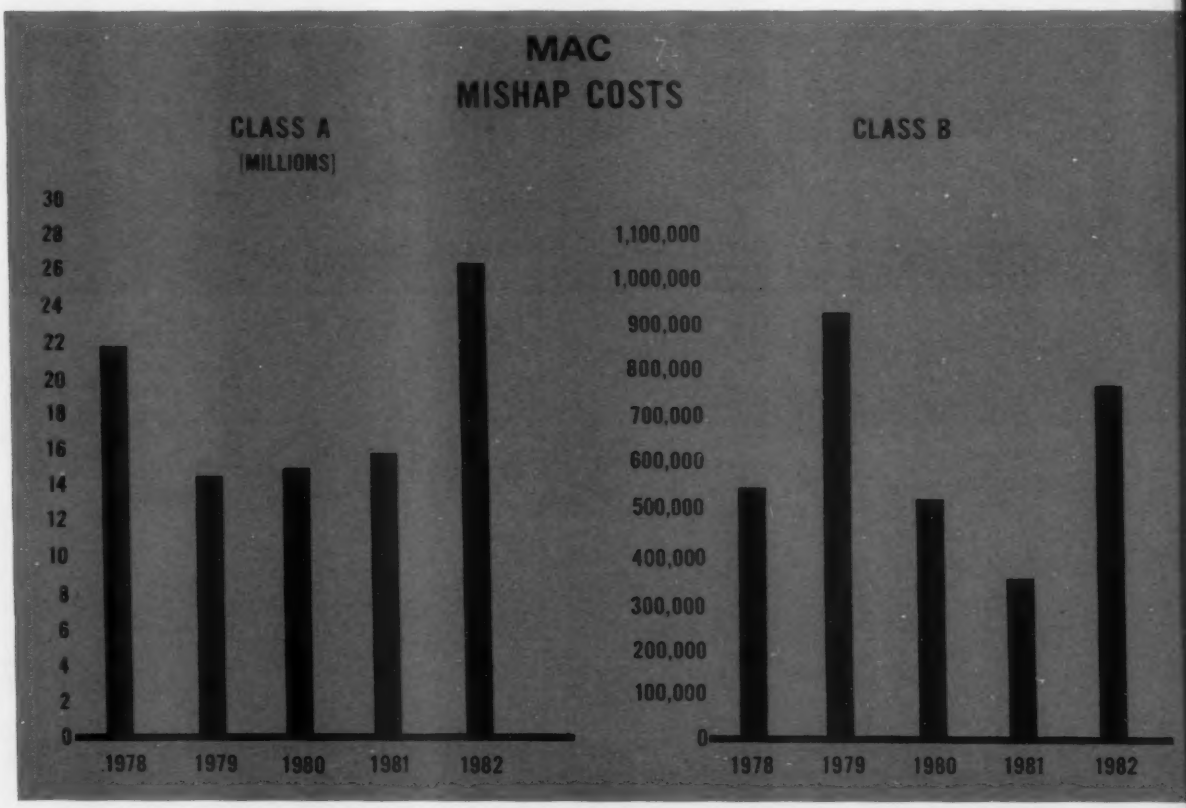
Standing Left to Right: Maj Joseph A. Schmitz, IP; Capt David K. Dingley, CP; MSgt Lawance H. Williams, FE.

1982 Mishap Statistics

A Disheartening Year for MAC

Disappointing! That one word sums up the MAC flying safety record for 1982. During the past year MAC aircrews logged over 659,000 hours, yet experienced nine DOD Class A flight mishaps. Those nine gave the command a Class A mishap rate of 1.3 mishaps per 100,000 flying hours, *the highest rate since 1978.* The command also experienced four DOD Class B flight mishaps in 1982 for a rate of 0.4, down slightly from 1981's rate of 0.56.

Even more disturbing than the Class A mishap rate, are the losses in both lives and equipment. During 1982, 54 MAC crewmembers and passengers died in flight mishaps, compared with 22 deaths in 1981. Class A flight mishaps cost MAC $26,001,000 in 1982, a significant increase over the 1981 costs of $15,582,000. Class B flight mishaps cost the command $752,470 in 1982, again an increase when compared to the 1981 costs of $335,000.

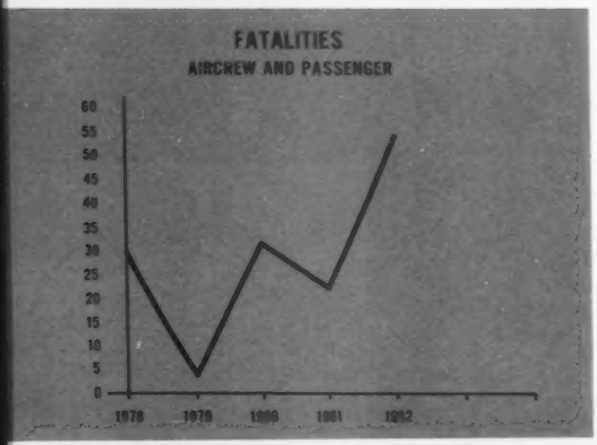


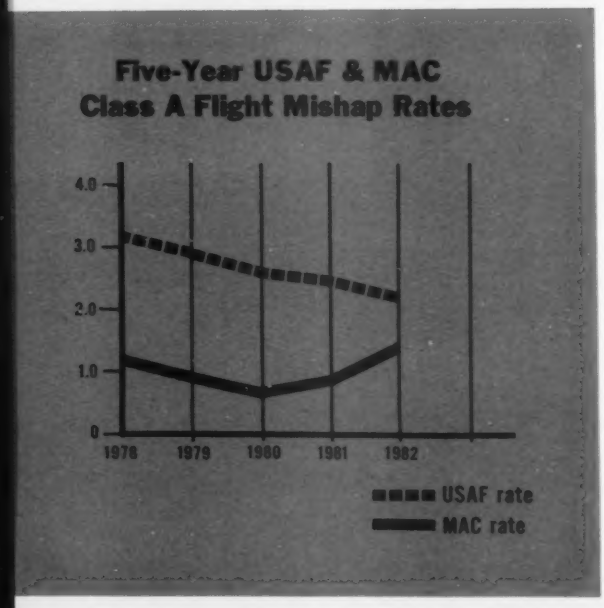
Class A Mishap Briefs

• An HH-3 crashed during a landing and rolled on its side. There were no injuries, but the mishap caused $513,000 in damages to the helicopter.

• A C-130 broke up in flight and crashed, killing the 9 crewmembers and 18 passengers on board. The total cost of the mishap was $4,880,000.

• Another C-130 also broke up in flight and crashed, the seven crewmembers were killed, and the mishap cost $2,673,000.





• A C-5 experienced an engine failure in flight. There were no injuries, but damage to the engine totaled $1,449,000.

• A UH-1 suffered rotor problems in flight and crashed, killing the two crewmembers and four passengers on board. The cost—$278,000.

• An HH-3 crashed short of the landing pad, rolled over, and b rned. There were only minor injuries, but damages totaled $1,130,000.

• An HH-53 crashed shortly after completing an aerial refueling, killing the four crewmembers on board. The mishap cost $3,500,000.

• A C-141 collided with the ground during a low-level training mission. The nine crewmembers on board were killed and the cost of the incident was $11,300,000.

• Lastly, a UH-1 experienced control problems and crashed, killing one crewmember. The cost was $278,000.

Class B Mishap Briefs

• A C-5 had an engine explosion and fire resulting in $241,000 damage.

• Another C-5 suffered birdstrike damage to all four engines and the leading edge slats. The cost was $249,000.

• Finally, a C-130 experienced a wheel well fire which cost $261,000.

Air Reserve Forces

MAC gained Air Reserve Forces suffered one Class B flight mishap in 1982. An AFRES UH-1 experienced a dual engine failure and was damaged during the subsequent landing. The mishap cost was $323,000.

1982 In Review

Overall, MAC's 1982 mishap experience was a disappointment, with increases in mishap rate (Class A), lives lost, and total mishap costs. So what can we do to improve our safety record in 1983? The answer—a dedicated effort on the part of flight crews, support personnel, and supervisors to keep MAC the safest and most professional command in the Air Force. Only by working together in a concerted effort to improve our safety record can we hope to reduce these tragic and costly losses to our nation's airlift capability. Declare war on complacency! Think, act and fly safe!

AWTH's Corner

Deflated or Not?

Primary factor/problem: Errors from illusion.

Contributing factors/problems: Task saturation, anxiety, supervisor pressure.

As every Galaxy crew knows, the 28 tires on a C-5 tend to look rather flat after the aircraft has been parked overnight, especially when the aircraft has a full load of cargo or fuel. It was just such a situation that prompted the submission of the following AWTH input.

During his preflight walkaround, a highly experienced C-5 flight engineer detected what appeared to be a flat tire. His technique, crude but effective, involved giving each tire a kick with his flight boot and then listening for a sound indicating a flat. Maintenance personnel insisted the tire was properly inflated, but the engineer persisted and called for a pressure gauge check. When the tire pressure was finally measured, it indicated the tire was not only flat on the bottom—it was completely flat! Since the pressure was below serviceable limits, the tire had to be changed before departure. According to the submitter, there is currently no accurate way to determine tire pressure other than through the use of the gauge, or the talented "toe and ear" of an experienced flight engineer. The undetected tire could overheat either during takeoff or landing with the potential of causing extensive damage. Truly an "Accident Waiting To Happen."

Loss of Oxygen

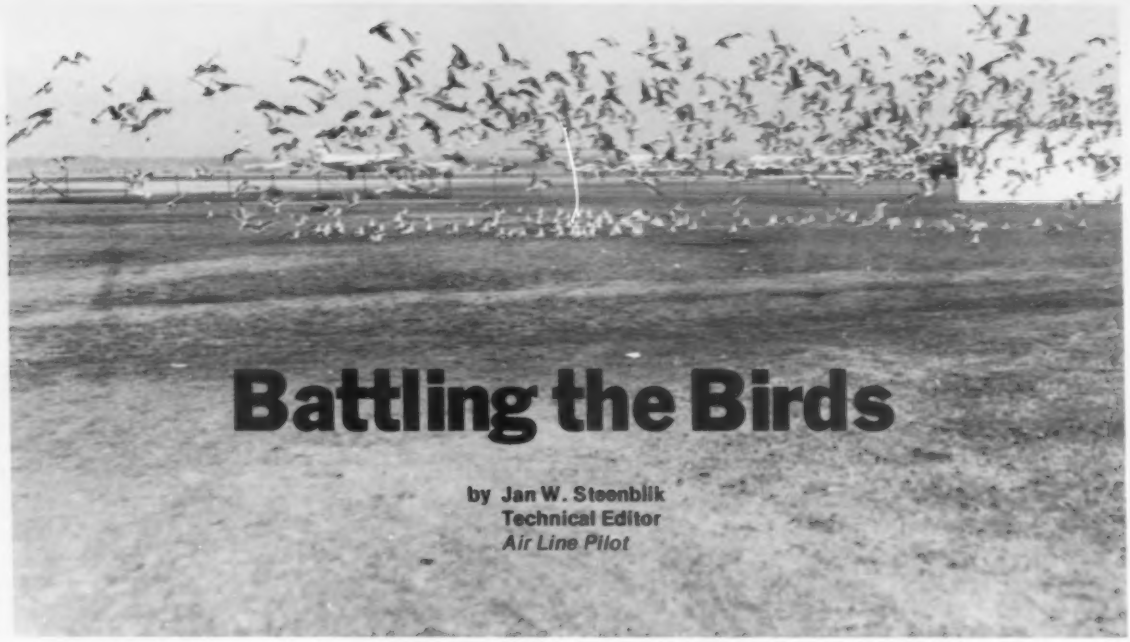
Primary problem: Difficult to read gauge.

In this report, a MAC crewmember inadvertently moved his oxygen regulator to the emergency position, totally depleting the crew's oxygen supply. How many times has this happened before? Hopefully, not very often.

"While cruising at FL 350, I scanned the oxygen regulator and the pressure read 'O' PSI. I then scanned the oxygen quantity, and it read 'O' also. My regulator was set to 'On, 100 percent, and *emergency*.' The oxygen system had checked out on the before-starting-engines checklist and the 10,000 foot check, but depleted shortly after that. We descended to FL 240 and pressed on with walkaround bottles between the seats. I'm sure a fight for the bottles would have occurred shortly after a rapid decompression, had we had one. I probably bumped the emergency switch either filling out the 781 or Form 3. Our regulators could use a guard for that little red switch!"

AWTH report: Personal code XYZ.

Reference the airsickness problem. We need more information than contained in your initial AWTH report. Tell us how you want to forward the additional information, to whom, etc.



Battling the Birds

by Jan W. Steenblik
Technical Editor
Air Line Pilot

The seagulls, awkward on the ground, squinted into the southerly wind and shifted their weight from one foot to the other. They were perhaps 100 in number, a raucous and gregarious group loafing on runway 13R at New York City's John F. Kennedy International Airport (JFK) on a cloudy November day in 1975.

Without warning, the flock rose from the wet asphalt, separated, and then, for reasons known only to themselves, regrouped a few feet above the runway—smack in the path of an Overseas National Airways (ONA) DC-10 accelerating at more than 100 knots. For all their superior eyesight, flying skill, and survival instinct, the gulls' last act was baffling in its stupidity and gracelessness.

Several of the gulls smashed into the widebody's right engine, a GE CF6-6 turbofan. Captain Harry R. Davis immediately aborted the takeoff, but the damaged engine had disintegrated and caught fire. At least three tires failed. An inoperative hydraulic system which disabled engine thrust reversers and wing spoilers, plus the wet runway, further degraded the aircraft's stopping ability. To avoid hitting infrangible approach lights, Captain Davis steered the aircraft off the runway.

The DC-10 came to rest over a storm drain, into which much of the fuel poured. Although fire trucks arrived on the scene within 60 seconds, the airplane burst into flames and was consumed within 5 minutes; the fire burned for 36 hours. Thirty-two persons were injured, two seriously. Miraculously, the only fatalities were the 10 or so seagulls found on the runway and the several sucked into the engine.

Bird Hazards to Aircraft

The first known bird strike fatality was Calbraith Perry "Cal" Rodgers, who became a national hero in 1911 by making the first transcontinental flight in a modified Wright EX Flyer, *Vin Fiz*. On April 3, 1912, Rodgers was killed during an exhibition flight over Long Beach, California, when a gull flew into the control wires of his biplane, causing it to dive into the sea. (Rodgers also had been attacked by an eagle over Texas during his transcontinental flight.)

Since Cal Rodger's death, more than 140 persons are known to have died as a result of collisions between aircraft and birds. Two of the worst accidents occurred during the early 1960s. On October 4, 1960, an Eastern Air Lines Lockheed Electra spun into Winthrop Bay shortly after takeoff from Boston's Logan International Airport, killing 62 of the 72 persons aboard.

Investigation revealed that the Electra's numbers 1, 2, and 4 engines had ingested a large number of starlings, resulting in shutdown of number 1 and "abrupt and intermittent loss and recovery of power" on numbers 2 and 4. On November 23, 1962, a United Airlines Vickers Viscount crashed in an inverted dive near Ellicott City, Maryland, after losing the left horizontal stabilizer (and subsequently the right stabilizer) to a whistling swan at 6,000 feet. All 17 persons aboard the four-engine turboprop were killed.

There has not been a fatal air carrier accident attributable to bird strikes since the 1962 United Viscount crash. However, numerous serious incidents and accidents (including the 1975 ONA accident) during the last 10 years have continued to underscore the seriousness of the problem. The Federal Aviation Administration (FAA) currently receives about 2,500 bird strike reports per year, with an estimated 10,000 worldwide.

How can an object as small, light and soft as a bird rip holes through 300-ton airplanes and destroy powerful jet engines? At a collision speed of only 130 knots, a 4 pound bird (for example, a mature gull) generates an impact force of more than 2 tons, distributed over a small area. Double the speed to 260 knots, and the same bird packs a 9-ton wallop; at 520 knots, *36 tons* (impact force increases at the square of the increase in velocity).

Decades of operational experience have shown that the principal dangers of bird strikes have been bird collisions with windshields, engines, and tail structures. Smaller birds are not likely to rip their way through windshields and airframes, but a large number of small birds—which often fly in dense flocks—can cause major engine damage, as in the 1960 Eastern Electra crash at Boston. As the examples above illustrate, bird strikes became more hazardous as aircraft speeds (and thus impact forces) increased. Moreover, jet engines, with their delicately balanced fan and turbine blades rotating at high speeds, proved much more vulnerable to bird strikes than reciprocating engines. Fanjets, having more inlet area, are more likely to ingest birds than are straight turbines.

Ornithologists and other experts on bird hazards to aircraft have reached several general conclusions about bird behavior and the nature of bird strikes:

• Most (80 percent) bird strikes occur near airports, during landing and takeoff, and usually within 2,000 feet of the ground. The airports themselves and the water, fields, and garbage dumps that often surround them offer feeding, breeding, and lodging sites highly desirable to, and capable of supporting, large numbers of birds.

There is no such thing as a *birdproof* airframe, windshield or engine!

• Scores of species have been involved in bird strikes, but a few types pose most of the threat. According to the FAA, gulls (which come in 44 species worldwide) account for 40 to 43 percent of all strikes reported; migratory waterfowl (primarily ducks and geese), about 11 percent.

• Migratory waterfowl—a significant hazard to general aviation, military training, and other low-flying aircraft because of these birds' large size and flocking behavior—usually fly at altitudes up to 6,000 feet, often as high as 20,000 feet. In North America, migrating birds follow four major flyways. (See back cover).

• No tropospheric airspace can be guaranteed free of birds—a bird strike occurred over Egypt at *37,000 feet.*

• The bird hazard to aircraft reflects not only annual migration patterns but other seasonal factors. For example, Dr. Joanna Burger of Rutgers University says immature gulls are involved in a disproportionately higher number of strikes than mature gulls.

• Bird hazards at or near airports often follow daily cycles. Peak air traffic demand periods during early morning and evening often coincide with birds' own commuter patterns.

• Operational cycles at airports with bird hazards apparently influence the risk of a bird strike. According to Rutger's Burger, runways in use at least every 10 minutes at JFK enjoy a lower rate of strikes than runways used less frequently, all other factors being equal.

• Higher aircraft speeds mean greater impact forces and less time for flight crews and birds to see and avoid each other, but flying slowly doesn't guarantee immunity from bird strikes. Recent strikes include one to a *taxiing* Beech 99, plus a collision between a large bird and a *hovering* U.S. Navy helicopter that seriously injured the instructor pilot.

Airworthiness Requirements.

Solutions to the problem fall into two general categories: (1) make aircraft more resistant to bird strikes and (2) reduce the number of strikes.

Federal Aviation Regulation (FAR) 25.631 mandates that the empennage of transport category airplanes must be designed to assure capability of continued safe flight and landing after impact with an 8-pound bird at sea level cruise velocity. On air transports, forward windshield panes and their supports must withstand, without penetration, the impact of a 4-pound bird at sea level cruise velocity, and the airplane must have a means to minimize the danger to the pilots from flying windshield fragments due to bird impact.

FAR 33.77 states that "ingestion of a 4-pound bird (striking a critical area of an engine operating at maximum cruise power at maximum climb speed) may not cause an engine to (1) catch fire, (2) burst (penetrate its case), (3) generate loads greater than specified, or (4) lose the capability of being shut down.

Airport Bird Control

The second part of the overall solution to the bird hazard reduction problem—reducing the number of strikes—primarily involves airport bird control.

Mike Harrison, a former Air Force pilot who logged many miles in B-737s at 500 feet, is FAA's sole bird hazard specialist, working in the Safety and Compliance Division, Office of Airport Standards (he also wears the hat of manager, airport safety data). Harrison says some airport managers erroneously think they have fulfilled their obligation to the pilot by simply noting, via notices to airmen (NOTAMS), automatic terminal information service (ATIS), and the *Airport/Facilities Directory*, the existence of a bird hazard on the airport. Acknowledging that "it's very difficult to compare bird hazards to other air safety problems," Harrison stresses that the bird hazard is, nevertheless, "a serious problem. Anytime we can do something to reduce the problem, we should."

Under an interagency agreement with FAA, therefore, the U.S. Fish and Wildlife Service provides technical assistance to nearly 200 airports with bird problems each year, assessing the nature of the hazard and recommending appropriate action.

At 130 knots, a 4 pound bird generates an impact force of more than 2 tons!

Airport operators have employed several measures, all partial or temporary solutions at best, to disperse or scare birds. Mechanical scarecrows and fake owls work until the birds become used to them, usually within a few days. According to Norfolk International Airport's William Shank, "Hanging dead birds where birds congregated scared them off for a day or two, but it upset some of our passengers, and our public relations image took a downfall." Birds even

become used to noisy propane or carbide cannons placed beside runways to fire at random intervals; some birds perch on the cannon barrels during cold weather to warm their feet. Cracker shells fired near birds by airport bird patrols also will disperse birds for a short time, as will tape recordings of birds in distress.

The long-term solution, however, is habitat manipulation, which requires first documenting what bird species pose a threat and then developing a solution tailored to that species—draining standing water; cutting trees, grass, and shrubs; poisoning mice and insects; or moving or blocking establishment of nearby garbage dumps. At times, habitat manipulation involves trade-offs. For example, letting grass grow tall on the airport discourages gulls (who prefer the clear view of approaching predators provided by short grass), but may encourage long-grass species such as pheasant and quail.

The cost of airport bird control can be substantial. JFK, which already had beefed up its airport bird patrols and related measures shortly before the 1975 ONA takeoff accident, now spends upwards of $500,000 per year on bird control. Replacing two engines on a B-747 costs approximately that amount, however, and JFK's intensified efforts have reduced the number of bird strikes at that airport substantially.

Pilot's Role

What *can* pilots do to reduce the hazards of birds to aircraft?

First, be aware of the problem. Even if you are flying an aircraft certificated under Part 25 (air transport category), remember that there is no such thing as a *birdproof* airframe, windshield, or engine. Remember also, if you are flying propeller equipment, that those whirling blades are not likely to stop a bird: at collision speeds, the bird may pass through the propeller arc in a couple thousandths of a second, while the propeller rotates less than 30°.

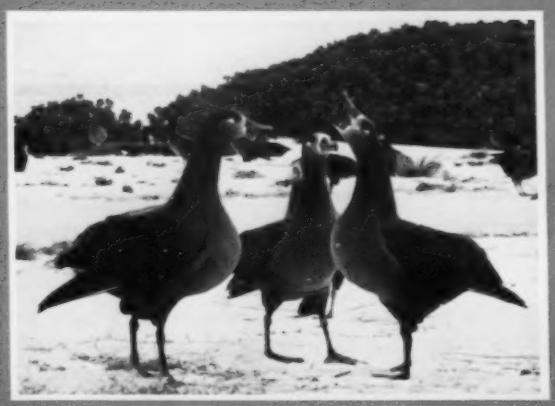
Some pilots have escaped serious injury by ducking below the glareshield after sighting birds on a collision course with the cockpit. Military experience has proven that eyeglasses and sunglasses can provide some protection in the event of a bird penetration of the windshield. FAA's Mike Harrison also believes that air carrier flight crews should have standardized emergency procedures for dealing with a cockpit penetration by a bird, as military aviators do; even though the flight crew may be uninjured and the aircraft otherwise undamaged and in control, the air noise resulting from a shattered windshield immediately places the crew in a lost-communications situation.

Reporting Birds Important

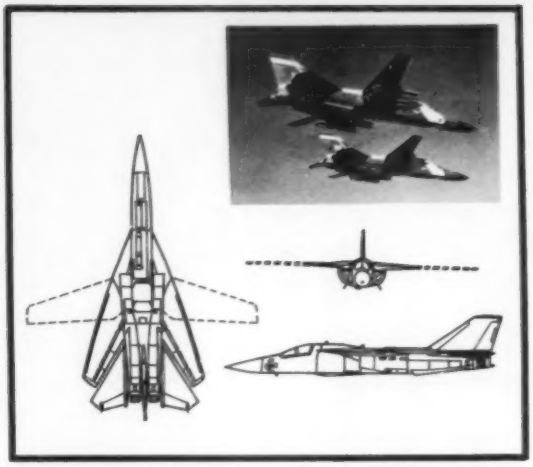
Flight crews sighting birds on or near an airport or flocks of birds at altitude can do their fellow pilots a great service by promptly reporting to air traffic control the type, number, location, altitude, and direction of flight of birds. Pilots experiencing bird strikes should advise air traffic control as soon as possible, especially if the strike occurs on an airport.

Bird hazards to aircraft probably never will be eliminated completely; they must however, be kept to a minimum. Only continued cooperation among scientists, airport operators, government agencies, manufacturers, and flight crews can minimize the damage to aircraft and the risk to their occupants caused by collisions with feathered fliers.

Editor's Note—There have been several serious mishaps in the past 5 months that involved MAC aircraft striking large flocks of birds. Since formal mishap investigations are still in progress in two of these incidents, little information can be released at this time. For the record, though, three of these mishaps involved extensive damage to one or more engines on four-engine aircraft. One crew, in fact, was forced to make an emergency two-engine heavyweight landing immediately after departure from a stateside base after striking a large flock of snow geese. Although all aircraft involved in these incidents have landed safely, the potential for disaster is readily apparent. For a humorous, yet thought-provoking look at the dangers of birdstrikes, reread C.R. Terror in the Janaury 1983 issue of *TMF*.



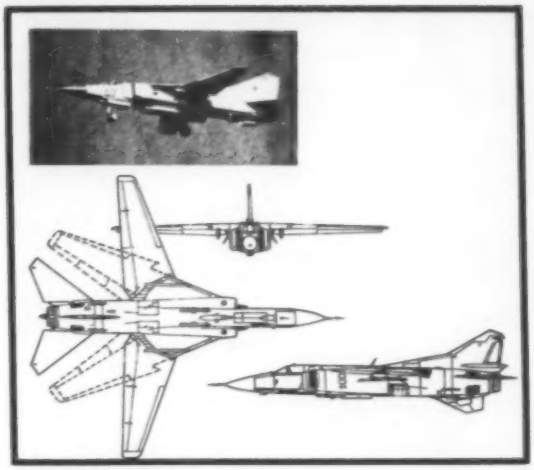
World Aircraft Recognition Guide



General Dynamics F-111E/F

Airlifters transiting Mildenhall are familiar with the F-111. This highly sophisticated, two-seat strike fighter is mainly used in Europe and the United States, though the Royal Australian Air Force operates approximately 24 F-111Cs. There are many variants of the aircraft including the EF-111A, an electronic countermeasures aircraft; the FB-111A, a strategic bomber belonging to SAC; and the F-111E and F. Principal recognition features include its large vertical stabilizer, twin side-by-side seating and dual, afterburning turbofans. The F-111 is nearly 20 feet longer than the Flogger and has a wing span some 16 feet wider.

Wing span: 63 ft (19.2m)
Swept: 33 ft 11 in (10.34 m)
Length: 73 ft 6 in (22.4 m)
Height: 17 ft 1½ in (5.22 m)
Armament: Conventional and nuclear weapons.



MiG-23/27

Flogger-B/Flogger-D

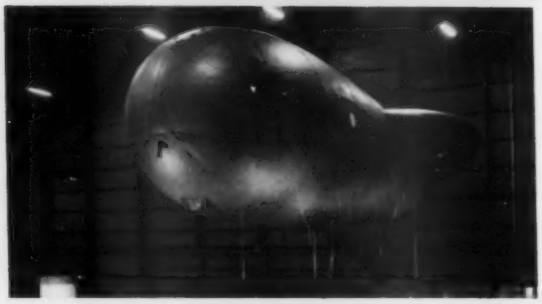
A standard Soviet interceptor or strike fighter, this Mach 2+ swing-wing jet comes in several versions and is exported to countries in the Middle East, Warsaw Pact and Cuba. Countries now operating the Flogger include Libya, Syria, Iraq and Czechoslovakia. The fighter version is referred to as Flogger-B or MiG-23S, while the attack derivative is known as MiG-27 or Flogger-D. Outstanding identification features include the large vertical stabilizer, single afterburning turbojet engine, and pivoting ventral fin beneath the vertical stabilizer. Although often compared to the F-111, the Flogger is closer in size to the Multi-Role Combat Aircraft (MRCA) Tornado now in service with Great Britain, Germany and Italy. Because of the Flogger's wide use in the Middle East and Europe, be particularly mindful of the whereabouts of this formidable fighter.

Wing span: 46 ft 9 in (14.25 m)
Swept: 28 ft 6½ in (8.7 m)
Length: 53 ft 8 in (16.35 m)
Height: 12 ft 11½ in (3.95 m)
Armament: 1-23MM cannon, 2 Aphids and 2 Apex AAMs.

Airlift Heritage

The Air Force Museum

by Captain Gale E. Clouse, Jr.
Associate Editor



Top: General Daniel "Chappie" James.

Above: Caquot observation balloon used in WW-I.

I've fought in three wars and three more wouldn't be too many to defend my country. I love America and as she has weaknesses or ills, I'll hold her hand." These words, spoken by the late General Daniel "Chappie" James, Jr., former vice commander of MAC, are inscribed on his portrait displayed in the Air Force Museum, Wright-Patterson AFB, Ohio. Painted by Maxine McCaffrey in May 1967, then Colonel James was the vice commander of the 8th Tactical Fighter Wing in Ubon, Thailand. General James' moving words and painting help us to reflect on our airlift, Air Force, and American heritage and the meaning of freedom.

The oldest and largest military aviation museum in the world, the Air Force Museum documents the history of flight spanning the period from Kitty Hawk to the present. Within the huge expanse of the museum we can sense our military flying "roots," and get a "sense of belonging" from examining the 170 aircraft and wall displays depicting the growth of military aviation. For the MAC enthusiast, the Air Force Museum contains a wide variety of both helicopters and aircraft to dazzle and delight.

Located in Dayton, Ohio, the museum occupies a large site in Area B, the Wright Field section of the twin-flying field complex that is known today as Wright-Patterson AFB. Over 800 feet long, and 240 feet wide, and with an oval roof soaring to 80 feet, the Air Force Museum contains aircraft, missiles, and large wall displays of aeronautical history. Fully air-conditioned, the museum features free admission and contains a 500-seat theater, restaurant, research center, art gallery, aviation book store, gift shop, and museum offices. The building, representing a $7 million investment, was paid for entirely by public contributions. Over one million visitors come each year to the Air Force Museum.

First Stop: the Museum Annex

Airlifters should plan to first visit the Air Force Museum's annex building on the historic old Wright Field flight line. Transportation to and from the annex is provided by a free shuttle bus from the main museum area, three-quarters of a mile away. The annex contains the bulk of the museum's airlift aircraft collection.

One colorful airlift aircraft on display is the Noorduyn UC-64A "Norseman." This 10 place, single-engine utility cargo plane was used by the U.S. Army Air Forces (USAAF) in 1942 as a light transport. Band leader Major Glenn Miller was a passenger on a UC-64A when he disappeared on a flight from England to France on December 15, 1944.

Two helicopters featured in the annex include the Bell UH-13J "Sioux" and the Kaman HH-43B "Huskie." While the UH-13J was used to transport President Eisenhower, the first Chief Executive to fly in helicopters, the HH-43B was used primarily for aircraft crash rescue and fire fighting. Last assigned to rescue duty with Detachment 3, 42d Aerospace Rescue and Recovery Squadron at Kirtland AFB, New Mexico, this particular "Huskie," also known as "Pedro," made its last flight to the Air Force Museum in April 1973.

Cargo planes are the mainstay of the annex. They include the C-39, C-46, C-47, VC-118, C-119, and the AC-130A. The Douglas C-39 was the forerunner of the C-47 with 35 C-39s produced in 1939. The Curtiss C-46D Commando displayed is most famous for its role in flying the India-China "Hump" over the Himalayan mountains in 1943.

The Douglas C-47D "Skytrain," more affectionately known as the "Gooney Bird," was derived from the commercial DC-3 airliner. With 9,300 aircraft produced by the end of World War II, "Gooney Birds" were used to transport personnel and cargo, and, in a combat role, to tow troop-carrying gliders into enemy territory. In Southeast Asia, the C-47 was configured as the AC-47 gunship known as "Puff the Magic Dragon." Flying frequent ground attack missions against enemy troops in South Vietnam, the AC-47 was capable of firing 6,000 rounds per minute from its 7.62 mm miniguns. Speaking of gunships, the AC-130A in the annex served as a testbed aircraft

Above left to right: Bell UH-13J "Sioux" helo purchased for President Eisenhower; Douglas C-39.

Left: VC-121.

for the gunship version of the C-130 and for later improvements in gunship armament, sensors, and fire control development.

The Main Museum

The main museum layout features a chronological sequence as Curator Jack Hilliard explained, "from the first thoughts of flight, right up to the present. The story unfolds year-by-year, as it developed." The Curtis JN4-D "Jenny," the Spad VII, the Standard J-1, and the Sopwith Camel tell the story of the early use of aircraft in 20th century warfare and of the by-gone era of barnstorming, silk scarves, and open cockpits.

The 1929-1930 era, World War II, and Korea periods are amply covered with aircraft from those times. The favorite exhibit area of Air Force Museum director, Colonel Richard L. Uppstrom, is World War II. "I get worked up over World War II. I learned to understand them (the WWII aircraft) when I was a kid. They form a nostalgic period for me since they're the planes I grew up with." World War II aircraft on display include the Boeing B-17G "Flying Fortress," the Curtiss P-40E "Warhawk," the Junkers Ju 88D-1, the Douglas O-46A, the Piper L-4 "Grasshopper," the Stinson L-5 "Sentinel," and the Supermarine "Spitfire" Mark L.F. XVIE. Other favorites are the North American B-25B "Mitchell," the Lockheed P-38L "Lightning," and the North American P-51D "Mustang."

With such a large variety of aircraft, spacecraft, and special exhibits to see, you'll need to watch your time carefully at the museum. There are a number of exhibits you shouldn't miss. Walk through the B-29 fuselage painted in the markings of "Command Decision," the bomber aircraft that shot down five MIG-15s during the Korean War. Read of the courage of each Air Force Medal of Honor winner on their individual portraits. See the hundreds of authentic scale models of military and commercial aircraft. You can also trace the evolution of the U.S. Air Force song, first introduced at the Cleveland Air Races on September 2, 1939. The original musical score was taken to the Moon on July 30, 1971, by the Apollo-15 all-Air Force astronaut crew of Scott, Irwin, and Worden.

Other exhibits feature the instrument flying exhibit of Colonel William C. Ocker and Colonel Carl J. Crane, and the McCook Field

Above left to right: Sikorsky YH-5A, circa 1944; Boeing KC-97L; Fairchild C-119J

Right: Douglas C-133 "Cargomaster"; Gemini spacecraft.

Photos courtesy of the USAF Museum Public Affairs.

"blunder trophies." The instrument exhibit of Ocker and Crane features a Russian translation of their 1932 pioneering work, *Blind Flying in Theory and Practice.* Colonel Uppstrom, the museum director, looks upon William Ocker and Carl Crane as the "unsung heroes of instrument flight." He relayed a story about the time that "Ocker was asked twice to go to the flight surgeon because he was crazy enough to want to fly in the weather." (For more information on Ocker and Crane, see Jan and Feb 1980 *TMF*, "Blind-Flying's Men of Vision.")

Blunder trophies were, perhaps, military aviation's first flying safety trophies. They were given at McCook Field in Dayton, Ohio during 1917-1927 to the Air Service test pilot community. Illustrious recipients include Lieutenant General James Doolittle of the 1942 Tokyo Raiders fame. The "blunder trophies" were an early and crude attempt to encourage pilots to fly safely and were given to test pilots who, through their own errors, managed to crash their aircraft. One blunder trophy featuring a mounted bone on a plaque was given for "bonehead" stunts. On it were inscribed the words, "We crashed, not because we ran out of gasoline, but because we ran out of knowledge." Blunder trophies were held by the "deserving" pilot until such time as another aviator performed an unsafe act.

The museum features "free" films shown on a daily basis as well as an evening film festival during the winter. Daily films include: "Red Flag," a 28 minute film about the dissimilar aircraft combat training at Nellis AFB; "Another Day of War," a 22 minute color film about the U.S. Air Force in Southeast Asia; "Man in Flight," a 35 minute Walt Disney animated film; and "All for One," a 16 minute combat rescue film about the combat recovery of Captain Gerald Lawrence. Past film festival selections have included "Desperate Journey" starring Errol Flynn and Ronald Reagan and "Strategic Air Command" starring James Stewart and June Allyson.

Coming Attractions

Two major exhibits will open in 1983. First to occur will be the roll-out of a Boeing P-12 in the late spring of 1983. Colonel Uppstrom calls this aircraft "the greatest restoration ever at the Air Force Museum." According to him, the 1932-1933 vintage two-seat biplane "reeks of glamor and nostalgia." Some introductory panels on Southeast Asia are also scheduled to be available late in 1983. "The big gap in the museum," according to the colonel, "is Southeast Asia." The wall exhibits and small Southeast Asia artifacts will be the start of the museum's more detailed portrayal of Southeast Asia in the future.

Reflections

Showing us where we've been and the airlift heritage we share, the Air Force Museum provides us with a starting point to plan and dream for the future. From the parade ground at Fort Myer, Virginia, in 1909 where the U.S.Air Force's first powered aircraft took flight, we trace the evolution of military flight to the present day. From the blunder trophies of the 1920s to the flying safety initiatives of the 1980s, we gain a sense of man's struggle for mastery of the air. From the pioneering work of instrument flight by Ocker and Crane, to its sophistication in the Apollo capsules in the 1970s, the Air Force Museum gives us time to reflect. For your own reflections and Air Force and airlift heritage experience, visit the museum, soon.

THE CHIEF PILOT

Charlie Macadam spins yet another tale.

by Lieutenant Colonel David M.H. Sibbald
Contributing Writer

So," blustered Charlie Macadam, "if there are no more questions, I hereby declare the monthly pilot's meeting officially closed. And, by virtue of the authority vested in me as chief pilot, I further declare that keg of beer officially open!" The thirty or so pilots quickly clustered around the keg. "Get comfortable because I'm gonna tell you a story," said Macadam as he hiked himself up on the edge of the shuffleboard and surveyed his audience.

"It was a dark and stormy night," he intoned. James Dalgleish, the wing commander who had just come in, didn't believe what he had just heard. Who but Charlie Macadam would dare start a story with a line like that? Who but Macadam could get away with it? Dalgleish turned off his brick and settled unobtrusively in the back of the crowd. Macadam's stories were usually worth hearing.

"Yessir, a dark and stormy night it was, at Rhein-Main. November of '62.We were in the pointy end of a C-124 Globemaster about to depart for Kano, Nigeria. Big flap down in the Congo, as I recall. Before your time. Anyway, we never got there. Matter of fact we never even reached the end of the active runway. We're creeping down the taxiway—slow, you understand, 'cause it's dark outside and raining hard. Well, all of a sudden, the gear handle goes red, the horn blares and the nose gear collapses. Just like that. For those of you who haven't had the pleasure, I'm here to tell you it's one heck of a thump when the metal contacts the concrete. I was flung into my shoulder-harness and fortunately the inertia reel worked. All I got was bruises, but good ones, I tell you. Then I looked over at the copilot and knew I was in terrible trouble. Johnson, the dunce, wasn't wearing his shoulder-harness and had just tried to take a large bite out of the control wheel. Know where it says 'C-5' in the center of the wheel on our airplane? Same deal, 'cept it was a circle of hard maroon plastic and it said 'Douglas' on it."

Macadam took a thoughtful swig of his brew and shook his head. "Didn't work. That Douglas emblem was no more edible than the Lockheed one is today. There was blood and teeth all over and nary a mark on that control wheel. So I get off a call to ground control, yell at the engineer to cage everything and we all get out of there, assisting, of course, the copilot who's bleeding all over the place. It's a dramatic scene: There's Ol 'Shaky sitting on her nose, ambulances, fire trucks and air policemen (that's what they were called then) all over the place. Flashing lights, sirens the works. Too bad video recorders hadn't been invented. Then everything was under control. It got awfully quiet and it occurred to me that everyone was staring at me. Suddenly, it was very chilly out, and I got the first glimmer of the fact that this whole mess was going to be all my fault."

"Johnson, the copilot, gets carted off to the hospital and that's the last I ever saw of him. Then the investigation starts. I'm here to tell you, boys and girls, that it's no fun ('specially when you are one of the primary suspects). Everybody gets off the hook on the nose gear collapse. They call it materiel failure in the strut and downlock, and there was no way we could have seen that on the preflight.

"But then they addressed the issue of whose fault it was that the copilot wasn't wearing his harness. Guess whose fault? Right! Me! The AC is in charge, is in charge, *is in charge*. Therefore he's responsible.

"Turns out this Johnson, new in the squadron, had a record of not wearing his harness and had to be nagged about it all the time. The reason I didn't nag was I didn't notice he wasn't wearing it. It was dark and I was taxiing the airplane. We even had a checklist item at that time, 'Seat belt and shoulder harness' to which the copilot would respond, as best I recall, 'Fastened and unlocked.' He was supposed to look over and observe me checking the inertia reel and, of course, check his own at the same time. I guess I should have checked him, but I didn't. Anyway, in spite of a creative and spirited defense, I got slapped with supervisory error because of Johnson and his busted mouth. Annoyed me no end, so it did. Huh! Anyway, I never saw Johnson again; he was taken off status for a good

All of a sudden, the gear handle goes red, the horn blares and the nose gear collapses.

long while and I lost track." He paused reflectively.

"Probably a good thing. If I'd ever seen him again I'd probably have busted his new teeth."

Macadam took another hefty gulp and then treated the group to his famous wolfish grin. Reaching into his briefcase he pulled out a blue and white copy of a National Transportation Safety Board (NTSB) accident report and held it aloft for all to see. "But guess what, boys and girls? Johnson lives! Yessirree, Johnson the Dunce lives, and what's more he's as dumb today as he was then. Maybe more so.

"We fly safely and efficiently and while we're at it, we have a good time . . ."

This here NTSB report concerns a certain commuter airline that is equipped with those funny-looking, little turboprops. You may have read last autumn how one of them ended up shooting a non-precision approach on one engine. The pilot got low and slow—how many times have I warned you people about that? Then he flew through some trees and landed before he got to the airport. Landed about a mile short, actually. The airplane was a write-off, but everybody walked away."

Here Macadam jumped off the shuffleboard and assumed his country auctioneer's pose. "Guess who was the pilot on the Mickey Mouse airliner?" Norton was out of his chair in a flash. "It was Johnson!" he shouted. "Johnson the Dunce! Has to be."

"Wait!" Macadam raised his hand. "Wait a minute! I said everybody walked away, but Johnson had to be helped. He was injured." Macadam's voice dropped to dramatic near-whisper. "Who can tell me what Johnson's injuries were?"

Dalgleish had finally had enough and stood up. "Charlie, Charlie," he said sorrowfully, "surely you're not going to try to sell this sophisticated group that infamous Johnson-tried-to-eat-yet-another-control-wheel-because-once-again-he-wasn't-wearing-his-harness story, are you?"

Macadam beamed, "Give that man a glass of foam," he yelled. "The colonel didn't get to be the wing commander for nothing! Yes sirree! Johnson tried to eat the yoke and no, he wasn't wearing his shoulder harness." Macadam's voice again dropped to a conspiratorial whisper. "So what message does Johnson have for us, eh? What can we learn from this dunce of mammoth proportions, this fellow who does not learn, this sorry excuse for a pilot who is now wearing his second set of store-bought teeth because he just will not strap in?" Macadam raised a bony finger. "We can learn that some people are unteachable, untrainable. They simply will not take a 'telling,' as the Irish say. And when we encounter one of those people, gang, throw a fence around him, cordon him off, shoot him in the foot if you have to, but keep him away from airplanes. If you have rank and command authority, get his wings, grab him by the shorts and get him out of our swimming pool. Because, friends, he will inevitably do something hideous to perfectly nice people like you and me." Macadam sighed. "End of story."

Dalgleish joined Macadam at the beer keg. "Charles, I really think you are in the wrong game. You should have been a snake-oil salesman or maybe a host on one of those terrible quiz shows where they give away vacations and cheap furniture."

Macadam surveyed his old friend coldly. "I certainly hope you're kidding, James, because you couldn't be more wrong. What I should be is what I am—the chief pilot. I'm good at it. I listen to the troops; they listen to me and between the bunch of us, we are motivated. We do one heck of a lot of airlifting, safely and efficiently. And another thing, James, while we're at it, we generally have fun. There's no rule against that, you know. In fact it's desirable; something you guys with the bricks occasionally forget. If fun is too frivolous a word for you, how about rewarding? If we don't make it fun or rewarding, James, people are gunna quit doing it, and then what good will all these expensive bricks be? We fly safely and efficiently and while we're at it we have a good time. As the old-time mechanic said when he saw his first jet engine, 'works-good, lasts-a-long-time, don't fool-with-it!' "

Dalgleish grinned at his old friend, switched his brick back on and said, "I won't, Charles, I won't. Now may I please have another glass of foam?"

Doc Talk

Editor's Note: In our attempt to bring you timely information in an interesting format, we thought you might like to look in on a typical squadron operations center in a typical airlift squadron. We find a gaggle of about-to-be-airborne crew-members awaiting swift transportation to their flying machines. Sitting in one corner of the squadron's scheduling room is young Second Lieutenant Ty LeNol Datrill. Young Lieutenant Datrill is blowing his nose as the assistant operations officer, a fatherly-looking senior major walks in. We listen.

"Going to slip the surly bonds of mother earth tonight, Datrill?"

"Sneeze, snarf! Right, thir. Gotta get that last ILS approach outta the way along with a low-level night route. Wheeze, cough! Can't go noncurrent, you know. Achoo!"

"Are you sure you're feeling up to it, young eaglet? Sounds more like you're doing an imitation of a dying moose."

"Oh, yes sir, I'm feeling all right. Just a lil' code in the noze. Achoo! Snarf, honk! Took four aspirins and a 'New Triple Strength Contrack' just a couple of hours ago. Feel fine." (At this point, the fledgling airlifter rubs his eyes to help focus in on the, by now, quite concerned looking major.)

"Uh, right. Scheduler!" The major calls in a prematurely balding captain from the midst of the merry-makers gathered around the operations center. "Take young Datrill here off that flight and find someone else to take his place. I think he's about to go DNIF!" The scheduler pulls his four remaining hairs out by their roots and plants a calloused forefinger into the dial of the phone, crying those immortal words, "But you're the only one available. Datrill just got sick!" Our dynamic duo, meanwhile, has departed the room and retired to the squadron's flying safety office.

"Young Ty," the fatherly major begins his lecture, "it's about time you discovered how old pilots like me and the squadron commander got to be old pilots."

EFFECTS AND SIDE EFFECTS OF COLD MEDICATIONS

DECONGESTANT	ACTION	SIDE EFFECTS
1. DECONGESTANT phenylpropanolamine, phenylephrine or pseudoephedrine	Reduces swelling in nasal lining by constricting blood vessels in nose & elsewhere in body	Nervous jittery feeling, swelling, elevated blood pressure, decrease in appetite and loss of sleep.
2. ANTIHISTAMINE usually chlorpheniramine which is chlortrimeton, or CTM	Inhibits outpouring of secretions in nose by decreasing the release of histamine, especially in those prone to allergies	Sedation. Also anticholinergic effect in some. See 3.
3. ANTICHOLINERGIC or drying agent—stropine, scopolamine and other belladona chemicals	Reduces secretions in nose and throat by blocking nerve stimulation to glands.	Interferes with all other automatic functions in body—iens of eye, heart, intestine, and bladder function. Therefore, blurred vision, rapid heartbeat, constipation, or urine retention could occur.
4. ANTITUSSIVE, or "anti-cough" usually dextromethorphan—DM.	Nervous system depressant, like a mild form of codeine.	Sedation.
5. ANALGESIC aspirin or acetaminophen—Tylenol.	Relelves pain.	Aspirin may cause stomach upset and/or bleeding.

CONTENTS OF COLD MEDICATIONS

	DECONGESTANT	ANTIHISTAMINE	ANALGESIC	ANTITUSSIVE	ANTICHOLINERGIC
Allerest	P-propanol	CTM			
Coricidin-D	P-propanol	CTM	Aspirin		
Dristan	P-ephrine	CTM	Aspirin		
Actified	P-ephedrine	Triprolidine			
Dimetapp	P-ephrine	Brompheniramine			
Nyquil	Ephedrine	Doxylamine	Tylenol	D-M & 25% Alcohol	
CONTACT	P-propanol	CTM			Scopolamine & Atropine
Sudafed	P-ephedrine				
Sine-Aid	P-propanol		Aspirin		

"But sir," the squadron's youngest eaglet protests, "I can hack it. Besides, all I need is just one more ILS and a night low . . ."

"Quiet! Methinks thou doth protest too much. Now look, Datrill. While I'm in charge around here, you're going to do what I say, and I say you're off the flight. It's nothing to be ashamed of, and I'll tell you why." With that, the major points to a chart hanging on the wall. "Now pay attention to this here chart, Datrill, if you can quit yawning, that is. You see, you too may become an ops officer somewhere in your career and find yourself faced with this same situation. If and when that ever happens, I'll come back to haunt your cockpit if you don't do then what I'm about to do to you now."

And what did Major Oldhead do to our fresh-faced young lieutenant? I thought you'd never ask. What he did was show the fledgling flyer the two charts below. One chart was a list of commonly obtained over-the-counter, otherwise known as OTC, cold medicines. The chart details what each medication contains as its main ingredients, and lists next to each main ingredient its main effect and, more importantly, its side effect. Now Major Oldhead heartily embellished his lecture with war stories and recounts of personal triumphs and tragedies, much too lengthy for this illustrious publication. For that reason, we'll simply just reprint the handy-dandy reference charts for your use.

Final Words From the Flight Surgeon

If, by this time, you still aren't sure about just what is safe and what isn't concerning self-medication and the common cold, let us enlighten you. If you have a cold, runny nose, sniffles, stuffed-up head, fever, popping ears, watery eyes or the like, see your friendly flight surgeon. Could be you're just allergic to the new pilot who just checked in from a remote in Outer Slobovia. Or, worse, you could have a sinus infection. It really doesn't matter what ailment you have or whether you're a pilot, nav, engineer, loadmaster, PJ, weather observer, or flight nurse. If in doubt, see the guy or gal with a snake and a stick emblazoned on their wings. Let's leave it at this. If you feel sick enough to take an aspirin, you're sick enough to see a flight surgeon. Lest this warning isn't enough, all you have to do is remember another service's tragedy that resulted when the pilot tried to self-medicate his cold. Play it safe and see the doc!

C.R. TERROR

The Skyways Sultan Snares a Sikorsky

Terror, get in here!" The bellow of the operations officer, Lieutenant Colonel Rotour, froze MAC's Most Marginal Major in his tracks.

"Were you requesting my humble presence, sir?" C.R. asked as he scurried into the ops officer's cluttered office and assumed some semblance of attention. What can I do for you?"

"Terror, I wish there was *nothing* you could do for me. Unfortunately, we need you to fly. It seems that last night's little chili party at your beach front 'villa' backfired, and every person in this squadron who attended is at the flight surgeon's office, complaining they have an extremely active case of the 'green apple quick step.' How come you're not sick, too?" The ashen-faced colonel slumped in his chair as beads of sweat appeared on his deeply-furrowed brow.

"Well sir, I can't imagine what the problem is. I ate as much of my world famous 'chili con carnage' as anyone and I feel just fine. Must be some sort of new virus." The Portly Pilot was silenced by a weak wave of Rotour's hand.

"Major, I don't have any choice. As much as I hate to, I have to send you on a rescue mission. You're the only aircraft commander left who is still able to function. We just received word that a civilian Zesta 172 is missing over the Elgin reservation and we've been ordered to participate in the search. I've already alerted your crew and

they should be here in 20 minutes." Suddenly, Rotour grimaced, and holding his stomach and doubling over in pain, beckoned C.R. closer. "Terror," he whispered weakly, "this is a direct order. You will not put so much as one scratch on that new UH-60 out there or I will personally boil you in hot oil. Is that clear?"

Nodding his head rapidly, the Rotund Rescuer replied. "Sir, you can count on me. And don't worry, I'll take good care of your Black Hawk."

"That's exactly what I'm afraid of, Major. So please, just this once, do it by the book." The now green-around-the-gills Colonel staggered to his feet and slowly edged towards the exit. Looking over his shoulder, he paused for one final remark. "Terror, I'm going to join the rest of the squadron at the hospital. If I ever hear you mention that concoction you call 'chili' again I'll . . ." But Rotour was unable to finish his threat. A look of pure panic crossed his face and he dashed down the hall. C.R. Terror was alone in the squadron.

Minutes later, a worried Sam ran into the room, followed quickly by Sergeants Torque and Downs. "What's up, Boss?" Sam asked. "Colonel Rotour sounded plenty worried when he called us. Say, where is everybody?"

"Not to worry lads," the Hovering Honcho interrupted. "It seems the rest of the squadron folks have some sort of—er—stomach ailment and are unable to aviate today. We've been selected to help search for a missing civilian bug smasher. It'll give us a good chance to try out that shiny new Black Hawk

on a true SAR mission. The crew bus should be here any second. Any questions?" Not pausing long enough to hear any, the Commander of the Collective headed for the waiting bus.

Sam, Max and Ty looked warily at each other as they followed C.R. out the door. "Uh, Boss, shouldn't we get a briefing on the search operation before we launch?" Sam finally asked, his brow wrinkled with worry.

"Right you are, Sammy," the Ace of ARRS replied. "But I already took care of that small detail. All the info is right here in my trusty black folder. Relax troops! I've got everything under control."

Reassured that C.R. was, in fact, somewhat in control, the crew followed him off the bus and into the immaculate new helicopter.

"This beauty is so new the paint's hardly dry," the Chief of the Chopper exclaimed as he bounded into the right seat. "Let's get this magnificent air 'chine cranked up and airborne."

Inspired by their leader's enthusiasm and the SAR ahead, the crew quickly completed their preflight tasks and strapped into their seats. Moments later the two GE turboshafts were cranked to life.

"How's about getting the clearance, Sammy m'lad?" C.R. cried gleefully. "We're ready to go."

"Jolly 16 is cleared to hover and depart to the northeast. Cleared for a left turn to the search area passing 500 feet. Squawk 0400 and contact departure on 127.5 when airborne." The tower controller obviously appreciated the seriousness of the mission.

With sweaty palms and a classic case of cotton mouth, the Portly Pilot eased the sleek

new helicopter into a 10 foot hover and accelerated for takeoff. Passing through 50 feet, C.R. yanked the Black Hawk into a hard left turn and headed for the search area.

"Boss, roll out! We're not supposed to turn until we pass 500 feet!" screamed the competent copilot as a grayish F-15 flashed in front of their nose.

"Gadzooks," the Flingwing Flyboy exclaimed as he abruptly reversed his turn. "Didn't anyone tell those fighter jocks we've got a real live SAR in progress? I've got half a mind to turn him in for failing to yield to a rescue helicopter." C.R. sputtered and fumed as he continued the climb—on the proper heading this time.

"There's 500 feet, Boss," Sam reminded, calmer now, "Clear left." Once established in the search area, the crew broke out the maps and began the search, all eyes straining for a glimpse of the wreckage they feared they would spot.

"Jolly 16, Elgin approach." The voice of the controller broke the crew's concentration. "Center reports the missing aircraft has landed at Pensivecola Naval Air Station. It seems the pilot was a little disoriented. That terminates the search. What type of recovery are you requesting back to base?"

"I'll handle this," the Relieved Rescuer advised his trusty second-in-command. "Uh, approach, Jolly 16 would like to cancel I-F and R and do a little low-level navigation practice. We'll proceed back to Elgin on our own and'll contact the tower for landing. Thanks for your help."

Before the approach controller could reply or his crew interrupt, C.R. had changed the transponder and switched the radio. Reducing power, he put the unsuspecting chopper into a max airspeed dive.

"Watch the airspeed, Major," Sergeant Torque yelled over

interphone. "We don't want to bend a brand new airframe."

But the Wily Warrior was way ahead of his crew and expertly leveled the hurtling helicopter just above the tops of the pine trees. "Great time to check out the speed and maneuverability of this beast, troops," he remarked to his white-knuckled crew. "I haven't had this much fun since I flew my first low-level in the Herky bird."

"Yeah Boss," the weary copilot interjected. "But remember the pine tree we brought home in the wingtip. Shouldn't we be a little higher?" Sammy's uneasiness was increasing—rapidly.

"Nonsense, m'lad. I've got more low-level time than you've got in your whole log book. You are flying with one of Mother MAC's true low-level experts." C.R. continued his impassioned self-praise—but it fell on deaf ears. His entire crew was anxiously clearing ahead of the Streaking Sikorsky, looking for obstacles.

"Pull up! Pull up!" The panic-stricken voice of Ty Downs filled the cockpit. But too late! With a sickening twang, the helicopter's main gear caught a single wire lurking just above the treetops. The arrested aircraft slowed abruptly then sprang free with an audible shudder.

The cockpit of the clothes-lined chopper was ominously quiet as the Morose Major began a gentle climb to a safer altitude. "Better take a look around, crew," he muttered softly. "We might have a little damage. Better to be safe than sorry."

"Pilot, engineer." The grim tone of Max Torque sent chills through the pilots. "Sir, it looks like we're trailing a couple of hundred feet of wire from the gear. We'd best plan on a straight-in landing."

"Who'd put a wire right in the middle of a military reservation?" the Suddenly-Moody Major grumbled. "I'll bet it wasn't even on the maps. Best get us clearance for a straight-in, Sammy, and while you're at it we may as well declare an emergency." Visions of Lieutenant Colonel Rotour's warning caused C.R.'s hands to tremble.

The cockpit was hushed during the ensuing approach and, unusual for C.R., safe landing. All too soon, the crew bus deposited the chastised crew at the squadron building.

Suddenly remembering the devastating "virus," C.R.'s spirits began to improve. "Maybe Colonel Rotour is still at the flight surgeon's office and won't have any comments on my—er—our mission." But the Misguided Major's hopes were abruptly dashed when the door to the squadron flew open and Rotour, his face now a dark shade of purple, stormed out.

"Terror, get in here!" That the colonel was close to apoplexy would be an understatement—close to justifiable homicide, was more like it. C.R., knees knocking and heart pounding, followed the livid field-grader into the office. Rotour sat down and broke several pencils, trying desperately to suppress the impulse to strangle the chubby major cowering in front of him. Finally, with some semblance of control, he began.

"Terror, you complete misfit, you violated my direct order not to damage my new helicopter! Now, I realize I can't boil you in hot oil like I said, but I think I have finally come up with a punishment that is suitable for your gross misconduct and total ineptitude. Starting at 0800 sharp tomorrow morning, and continuing for the next 6 weeks, you will report to Chief Master Sergeant Frieze at the Climatic Hangar. You are going to be MAC's on-the-scene-observer for a little test on a prototype helicopter." Noting C.R.'s look of relief, he unleashed his final salvo. "By the way, Major, you had better dress warmly. The temperature inside that hangar will be a constant 10° below zero. And in case you are wondering why I'm doing this, it's a favor. I'm giving you a chance to get acclimated for your new assignment—snow control officer at South Pole Naval Research Center." He glared at the Black Hawk Buffoon. "And as an even more 'personal' personal favor, I took the honor of volunteering you for a 2-year tour."

Dejectedly, C.R. began to slink toward the door, but the still-irate colonel continued. "Oh, incidentally Terror, the wire you hit was a main phone line to the beachfront motels. The phone company says they'll have it fixed in a day or two, and they plan to add the repair cost to your next phone bill. Dismissed!"

C.R. stumbled falteringly out of Rotour's office, totally in shock! Leaping to their feet, his crew anxiously questioned him. "What did he say, Boss? Are you off the hook? Was he really serious about the boiling oil trick? Are you OK?"

Slowly, the color began to return to the Lacerated Leader's plump cheeks. Running his tongue over his dry lips, he turned to his crew. "Does anybody know the name of a good outdoor store featuring antar . . . er . . . cold weather survival clothing? I think I'm going to need some."

turn—TURN—TURN!

The CT-39 crew had a real "milk run"—pick up an aircraft at the inspection facility and fly it back to the home drome. Everything was going smoothly. Preflight, engine start, and taxi checklists were completed without incident, and the crew prepared to taxi. Brakes released, the aircraft rolled forward and the crew attempted to turn. But, there was no response from the nose wheel steering. The astonished crew deftly turned the miniliner using differential braking, then checked the "nose-steer-on" light and normal hydraulic pressure—both were indicating properly. Noting no response to either normal or standby nose wheel steering, the crew wisely parked the airplane where it was, shut it down, and turned it over to the maintenance troops. The suspected problem—two broken grounding wires on a terminal strip in the nose gear steering relay assembly. A good thing the brakes worked!

Hyperventilating Nav

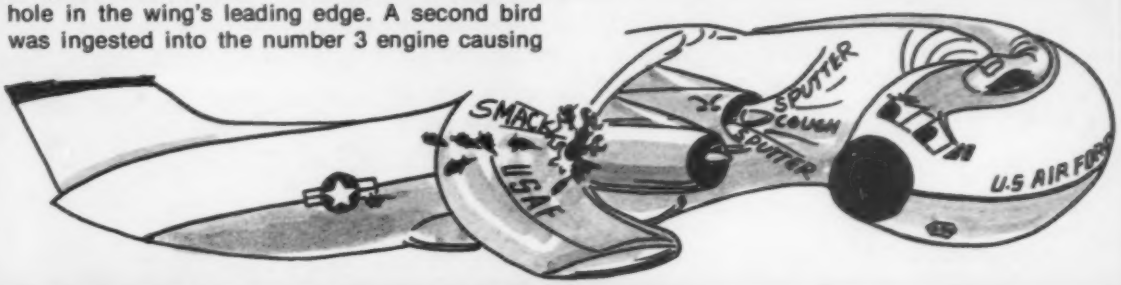
We find one young non-MAC navigator in the air on a routine training mission. After several equipment failures and miscues, she begins to feel a tingling in her hands and becomes increasingly irritable. Her breathing rate also becomes more rapid. The pilot notices this, and really becomes concerned when she goes on oxygen. He calmly talks to her and helps her run a couple of checklists until the symptoms disappear. The nav then completes the rest of the mission in fine form. As required, the hyperventilating nav goes to see a flight surgeon after landing.

After interviewing and testing the young instructor navigator, the flight surgeon discovered some interesting facts. Although experienced and competent, the nav had recently undergone some stress-inducing changes in her squadron duties. She was also facing a real stress-inducing "change in lifestyle"—she was separating from the service. Now, coupled with the stresses of the moment, such as one or two navigational equipment failures, a delayed takeoff and some difficulty during the mission, and the stage was set for an episode of hyperventilation.

This isn't really all that isolated a case. Physiological incidents can and do happen to the best of us, and they usually happen at the worst possible moment of a flight. Even in MAC, we have our share. Be sure of your symptoms and if you recognize their onset, take the appropriate action—immediately!

Flocking Together

A C-141 was flying a local airdrop mission at a drop zone and encountered a large flock of birds at 1,000 feet AGL. One "foul" friend tore an 8 inch hole in the wing's leading edge. A second bird was ingested into the number 3 engine causing first stage fan section damage. Remains were deposited in both oil coolers. No abnormal engine indications were noted and the crew landed safely.



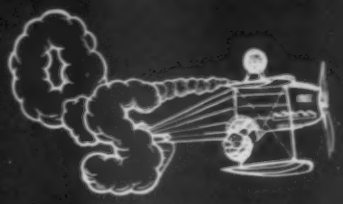
Buzzard Strike

The Air National Guard C-130 had just turned downwind on radar vectors for an ILS approach. After leveling at 2,000 feet, the copilot caught a glimpse of a large bird out the left swing window, followed by a loud thump. Number 1 engine RPM promptly decayed to 70 percent. After declaring an emergency and shutting down the errant engine, the crew landed the Herk safely.

Buzzard remains were found in the intake and throughout the number 1 engine causing extensive damage to the inlet guide vanes and the compressor section. The Herk's power plant, unfortunately, will require depot-level repairs.

The Passenger Said What?

A CH-3E was on a routine cross-country flight when one of the passengers in the cargo compartment reported to the crew that he had heard a noise in the transmission area. The flight engineer looked back toward the cargo compartment and was startled to see oil spraying out of the main gear box area. Simultaneously, the crew noticed the transmission oil pressure drop to zero. They reacted quickly and made an uneventful emergency descent and rough terrain landing. Safely on the ground, the crew discovered the transmission filter bowl had separated from the main gearbox, causing the massive oil leak. This crew was fortunate it had an alert passenger on board—even more fortunate he reported a strange "noise" to the crew.



Strange Encounters of the Stormy Kind

Thunderstorm season is upon us, and we've selected some electrifying encounters for you.

Over Germany at 6,000 Feet. OAT: + 2°C.
The brown and green flying machine was holding in clouds at 6,000 feet MSL over Central Europe. Lightning struck the orbiting C-130's radome causing five burn spots. Cost of repairing the radome: $2,300.

Over New England at 10,000 Feet. OAT: -4° C.
The Starlifter's radar returns indicated rain showers during descent into a Northeastern U.S. base. While passing 10,000 feet and at 230 knots, the aircraft was struck by lightning. Entering the Starlifter on the left hand side near the total temperature gauge, the lightning exited from the top of the T-tail. Later inspection revealed a T-tail assembly fairing missing. Cost of this lightning strike: $4,500.

As we're sure you know, lightning can strike almost anytime, anywhere. Your best chance to avoid a lightning strike is to avoid thunderstorms. MAC crews, however, have to fly in every kind of weather and should be aware of the avoidance criteria listed in the appropriate MACR 55-XXX and AFR 60-16. Generally, 95 percent of lightning strikes occur within ± 8° of the freezing level. Our best advice is to stay aware to stay alive.

The staff of TMF bids a fond farewell to Ms. Flyer who has introduced our "Quick Stoppers" for 29 years. A strong advocate of safety, she has served the magazine proudly. We wish her a pleasant retirement in her Palm Springs condo. We'll miss you!

AFTER DEADLINES

AIRCREW DISCIPLINE AND ADHERENCE TO REGS are hot topics in the Air Force right now. Several recent incidents and mishaps throughout the Air Force have underscored the need for each crewmemeber to watch what the other people on the crew are doing, and if it doesn't look right, or if it doesn't feel right, then say so! One case concerns adherence to standard low-level altitudes. Low-level tactical training is always risky, but there's no need to descend below our present 300-foot peacetime training restriction. To do so is a breach of aircrew discipline and just plain poor judgment. If you see this happening, or witness any breach of aircrew discipline, its your responsibility to let the offending party know about it. MAC doesn't operate any single-seat "F-130s" or "F-141s." The "C" may stand for cargo, but it also stands for "crew."

TRAGIC ERO—A tragic incident at St. Louis' Lambert International Airport dramatically reinforces the old saying, "E-R-O means Extra Risk Operation." Passengers were boarding a commuter airliner, a Merlin II, from the left side as normal. The aircraft's left engine was shut down and the right engine was turning to provide ground power—a standard operating procedure at most airports in this country, and indeed, around the world. Unfortunately, a little 5-year old girl dropped her toy stuffed animal which was swept under the plane by the whirling wind and carried beneath the turning prop. The little girl bolted from her mother's grasp, under the plane and into the path of the turning propeller before anyone could react. At this writing, she remains in serious condition having lost an arm and a foot. In different circumstances, it might have been a C-130 involved in a night ERO of army troops. As in any hazardous operation, there is no such thing as being "too careful."

PARDON OUR ART—In our January "Mishap with a Moral," concerning an ill-fated English-built Britannia transport, we incorrectly portrayed the turboprop in Royal Air Force (RAF) Transport Command markings. The mishap aircraft was an ex-RAF Britannia operated by a private commercial concern. Thanks to our sharp-eyed RAF exchange officers all over MAC for pointing out the mistake.

UNDER THE WING AND THROUGH THE WOODS—Flight operations differ somewhat between the FAA and the Air Force. Case in point concerns a C-130 on the "hold short" line awaiting takeoff. A twin-engine civil plane starts to exit the active, and since there is a helo on the C-130's right side and weeds on the left, our fearless Herky honcho foresees a traffic jam about to happen. Low and behold, the light twin taxis under the Lockheed Legend's right wing, between the Herk and the hovering helo. When contacted by the C-130 AC, the local FAA GADO (general aviation district office) responded, "...only you Air Force types have any rules about taxi clearance, and we don't consider this instance to be careless or reckless ground ops. Happens all the time." Whew!

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Feathered Flyers on the Move

Bird Migration Patterns